Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
The Impact of Middle and Second Mile Access	)	GN Docket Nos. 09-51,
On Broadband Availability and Deployment	)	09-47, and 09-137
	)	
as part of	)	
	)	
The National Broadband Plan *NOI*	)	

COMMENTS - NBP PUBLIC NOTICE #11

FiberTower Corporation ("FiberTower") hereby submits these Comments in response to the Federal Communications Commission's ("Commission") Public Notice ("*PN*") regarding the impact of middle and second mile access on broadband availability and deployment.[1] The *PN* was crafted pursuant to a Notice of Inquiry ("*NOI*") in the National Broadband Plan proceeding.[2]

I. INTRODUCTION

Pursuant to the American Recovery and Reinvestment Act of 2009[3], the Commission must submit to Congress on February 17, 2010 a national broadband plan designed to ensure that every American has access to broadband capability. In the *PN* the Commission seeks information about the availability of middle and second mile transport services and facilities and their important, "if not gating," roles in the economics of broadband deployments, particularly to rural, unserved and underserved areas.[4] No national broadband plan would be complete without strong "middle mile" and "second mile" backhaul components. For purposes of this *PN*, "middle mile transport" refers generally to the transport and transmission of data communications from

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1 "Comment Sought on Impact of Middle and Second Mile Access on Broadband Availability and Deployment" FCC National Broadband Plan Public Notice #11, DA 09-2186 (Oct. 8, 2009)("*PN*").

2 In the Matter of A National Broadband Plan for Our Future, *Notice of Inquiry*, 24 FCC Rcd 4342 (2009) ("*NOI*").

3 American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, 123 Stat. 115 (2009)("ARRA").

4 *PN* at 1.

the central office, cable headend, or wireless switching station to an Internet point of presence.[5] "Second mile transport" refers generally to the transport and transmission of data communications from the first point of aggregation (such as a remote terminal, wireless tower location, or HFC node) to the point of connection with the middle mile transport.[6]

FiberTower is pleased the Commission recognizes the middle mile and second mile backhaul issues. They indeed are gating items to ubiquitous national broadband deployment.

Currently, there is a significant lack of adequate middle mile and second mile backhaul capacity. The middle mile and second mile backhaul infrastructure in particular has not been comprehensively upgraded in two decades and has largely not kept pace with other network enhancements. This lack of development inhibited the growth, service quality, and operational efficiencies of broadband services. To address this widening broadband backhaul and transport gap, the Commission and Congress should take a number of steps.

First, the Commission's national broadband plan should ensure that all broadband operators and broadband users are able to access multiple-use middle mile and second mile backhaul platforms in a non-discriminatory manner.

Second, the Commission should designate licensed point-to-point spectrum for longer haul middle mile and second mile access. In the past fixed wireless long haul spectrum was available around 2 GHz, yet it was subsequently displaced to make room for end-user applications. Today, robust end-user applications are straining many middle mile and second mile networks. Additionally, middle mile and second mile applications are lightly available or not available throughout large swaths of the country. One readily available solution involves making a *limited* number of the *numerous* vacant channels in the TV White Spaces available for fixed, point-to-point licensed use.

Third, remove obstacles to fixed wireless backhaul antenna placements. The Commission should re-enforce existing federal rate, term, and condition protections with respect to facilities placement on utility structures and unreasonable state and local government deployment restrictions for fixed wireless antenna placements. It should also vigorously urge Congress to expand and clarify the related protections afforded to broadband providers. Fixed wireless antennas 1-meter or less in size should be deployed as easily and quickly as similarly

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5 *Id.*

6 *Id.*

sized satellite receiver or transceiver dishes. In other words, remove any impediments that allow a zoning authority to regularly require a 30-60-90+ day reviews for a fixed wireless antenna installation when a similarly sized (or larger) satellite dish can be deployed without any delay.

Finally, the Commission, as part of its' consultative role in the broadband provisions of ARRA,[7] should ensure that the National Telecommunications and Information Administration (NTIA) and the Department of Agriculture's Rural Utilities Service (RUS) encourage middle mile and second mile carriers to access the secondary spectrum markets where such carriers find other wireline or spectrum solutions economically or technically infeasible or simply unavailable.

II. ABOUT FIBERTOWER

Formed in 2000, FiberTower is the nation's leading alternative carrier for middle mile and last mile backhaul. FiberTower operates a 100 percent facilities-based communications network using fiber optic and wireless assets. Its network spans more than 6,000 base stations in 13 United States markets. In addition, FiberTower's network currently covers approximately 13,000 route miles, with 7,000 miles covered using fixed wireless and another 6,000 miles using dark fiber.

FiberTower's spectrum portfolio represents one of the largest and most comprehensive collections of 24 GHz and 39 GHz wide-area millimeter wave spectrum in the United States. FiberTower's spectrum licenses extend over substantially all of the continental United States, covering a population of approximately 300 million. The portfolio includes more than 740 MHz in the top 20 metropolitan areas. In the aggregate, these channels cover approximately 1.55 billion channel pops.[8]

FiberTower offers service to mobile wireless carriers, competitive and other local exchange carriers, first responder networks, and government and enterprise customers. Through partnerships and master lease agreements, FiberTower has access to more than 100,000 towers nationwide on which it can deploy carrier-class and government-class networks. In fact, the top eight mobile carriers and several federal government agencies are among FiberTower's largest

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[7] *See* GN Docket No. 09-40.

[8] Calculated as the number of channels in a given area multiplied by the population, as measured in the 2000 Census.

customers. Additionally, FiberTower has master service agreements with Verizon and Qwest to provide fixed wireless services on the General Services Administration *Networx* contract.

III. COMMISSION CONCERNS

The following seeks to outline certain economic and practical obstacles to deploying robust middle mile and second mile networks over the next 5-10 years that are capable of supporting broadband end-user networks and applications nationwide.[9]

A. Making Network Components for Middle and Second Mile Connectivity Affordable

Recommendation 1. Encourage the Use of Efficient Multiple-Use Backhaul Platforms.

The *PN* recognizes that to provide broadband service to consumers and small businesses in an area, a broadband Internet service provider needs to have adequate, reasonably priced, and efficiently provided access to both second mile and middle mile connectivity.[10] Other broadband Internet service providers, whether mobile or wireline, incumbents or competitors, all require backhaul at affordable rates and at reasonable service level agreement ("SLA") terms. The same is true for building-centric end-users that require transport services that depend upon middle mile and second mile solutions to reach the Internet or a switching center. Such building-centric end users include government centers, schools, libraries, medical facilities, business parks and community learning centers.

A key element in making access affordable to these carriers and building-centric end users is to provide them all access to multiple-use backhaul platforms, also known as MuniFrames®. When multiple end users access these platforms the high backhaul costs are distributed and thus reduced for each end-user. This approach also reduces then need to build multiple, expensive, separate backhaul transport connectivity solutions.

These multiple-use platforms can be served by fiber, microwave or other transport technology. Total microwave capacity to a tower or rooftop shared access platform may scale from 150 megabits per second (Mb/s) to 1 Gb/s or more. Multiple end users or end user services

[9] *PN* at 2-3.
[10] *PN* at 2.

may access a slot on the tower or rooftop where the multiple-use platform is located. Each slot may start with 10 or 20 Mb/s of guaranteed backhaul capacity and scale to 200 Mb/s or greater.

Insufficient backhaul is particularly problematic in rural areas because of the often great distances between a local network and an Internet connection.[11] In the *NOI*, the Commission asks whether backhaul costs are an impediment to further broadband deployments.[12] The answer is "yes." The longer the transport distance, the greater the expense. The high cost of middle mile and last mile backhaul — particularly in rural areas — is a major barrier to affordable, universal broadband.[13]

In 2007, responding to a FiberTower initiated proceeding, the FCC allowed for 2 ft dish use in the 11 GHz band, where previous dish sizes of 4 ft (1.2 m) and above were required. [14] In the 24 GHz and the millimeter wave bands, 10 inch or smaller antennas are now routinely deployed. The spectrum between 30 GHz and 300 GHz is referred to as the millimeter wave band because the wavelengths for these frequencies are about 1–10 mm.[15] Those small antenna systems provide the ability to extend backhaul to lighter tower and building structures and use less square footage, thus reducing rent, in addition to reduced weight load and wind load. Some small antenna systems include self-contained transceivers in the outdoor unit ("ODU") with only a power transformer needed indoors or inside a cabinet and offer full duplex capacities ranging anywhere from 10 Mb/s to over 40 Mb/s. Some small antenna systems, typically at or above 24 GHz, when paired with separate ODU systems, deliver 100 Mb/s–1 Gb/s. Larger capacity systems, which typically use 2–6 ft antenna systems, offer high-capacity microwave backhaul capabilities ranging from 200 Mb/s to over 1 Gb/s. Low-profile systems offer an additional advantage of enabling femtocell deployments in areas where line of sight ("LOS") exists and

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11 *See, e.g.*, *Comments of Verizon and Verizon Wireless*, GN Docket No. 09-29, at 11 (filed Mar. 25, 2009).

12 *NOI* ¶ 50.

13 *See, e.g.*, *Comments of New America Foundation*, GN Docket No. 09-29, at 5 (Mar. 25, 2009) (stating that "increasingly [limited] access to the high-speed middle mile links that carry Internet traffic to the backbone, and the escalating costs associated with transporting traffic among networks, have become fundamental barriers to spreading connectivity, promoting broadband competition, improving speeds and lowering prices") ("*New America Comments*").

14 In the Matter of Petitions for Waiver of Sections 101.103 and 101.115 of the Commission's Rules for the Use of Smaller Antennas in the 10.7–11.7 GHz Band," WT Docket No. 07–54 (Sept. 10, 2007).

15 "Millimeter Wave Propagation: Spectrum Management Implications," FCC Office of Engineering Technology Bulletin 70 (July 1997). Available at: http://www.fcc.gov/Bureaus/Engineering_Technology/Documents/bulletins/oet70/oet70a.pdf

Digital Subscriber Line ("DSL") or other wireline solutions are not available due to distance limitations, economics, or both.

Promoting multiple-use backhaul platforms facilitates Internet and telecommunications connections of buildings and cell sites employed by multiple carriers, public safety entities, and government and private enterprise users. Indeed, because of the importance of middle mile and last mile backhaul facilities, Congress explicitly envisioned that broadband-related economic stimulus funds could be used to support the deployment and use of such infrastructure.[16] The Commission should honor and enhance Congress's economic stimulus funding mandates and incorporate a vigorous middle mile and last mile backhaul network deployment strategy into its national broadband plan.

As recognized by numerous parties filing comments on broadband-related matters, no community or network "is an island." The escalating costs of carrying Internet-bound traffic to the backbone and transporting traffic among networks have become roadblocks to broadband connectivity and competition — and the benefits of enhanced speeds, scalability, functionality, and lower prices.[17] But more and better (faster and more scalable) middle mile and last mile backhaul would increase the number of interconnection points, routes, and broadband competitors. Scalability is particularly critical: without it "rural networks will hit a wall in terms of speed and pricing as the capacity costs associated with increased traffic to the backbone will grow faster than profits."[18]

Trenched fiber at its cheapest costs US$10-35 per foot to install, and may reach US$250 or more per installed foot. Unlike fiber, fixed wireless deployment costs remain distance insensitive within the range for each deployed link. If a particular microwave system can operate anywhere from zero to ten miles, the cost for deploying that link remains constant whether the link is one-quarter mile or ten miles or longer, provided line of sight ("LOS") exists and there is no need to deploy repeaters. Customers often find the economics attractive. Fixed wireless systems offer more flexibility, less expense, and quicker deployments than wired networks, using building or tower mounted antennas placed at strategic points in a direct LOS with one another. Wireless backhaul providers, working in conjunction with telecommunications equipment

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16 H.R. Rep. No. 111-16, at 774-75 (2009) (Cong. Rep.), *available at* http://frwebgate.access.gpo.gov/cgibin/getdoc.cgi?dbname=111_cong_reports&docid=f:hr016.111.pdf.

17 *New America Comments* at 5.

18 *Id.*

vendors, evolved wireless backhaul technology and equipment, resulting in proven and mature alternatives to wireline backhaul services. Less than 25% of the approximately 220,000 U.S. commercial mobile base stations in 2008 utilized backhaul connections that exceeded 12 Mb/s. Often, only one base station existed per tower or rooftop site. Carrier customers who collocate with other carrier customers at a shared access backhaul platform will learn they can garner savings in both access costs and deployment timing. This trend is evident overseas. Vodafone and Telefónica announced an infrastructure sharing deal this year, as did Telenor. "In practice, the agreement means the companies will jointly build sites or consolidate existing antenna towers and infrastructure for second-and-third-generation networks, reducing the total number of cellphone towers in operation and cutting the amount they pay to rent their equipment".[19] Similarly, the International Telecommunications Union ("ITU") recently published a major report on infrastructure sharing. "ITU has published its annual report, 'Trends in Telecommunication Reform 2008: Six Degrees of Sharing,' detailing a set of regulatory strategies designed to lower the costs of network rollout".[20]

Recommendation 2. The Commission Should Ensure that Multiple-Use Backhaul Platforms Are Mapped and Reasonably Accessible to Last Mile Networks and Building-Centric Users.

In addition to the Commission encouraging the installation of multiple-use backhaul platforms, it should ensure they are mapped and their existing made readily known to end-user networks and building-centric end users. It is essential to the national broadband plan to map whether and where these multiple-use platforms exist. In addition, the Commission should ensure that all providers of broadband have the opportunity to enjoy reasonably equal, non-discriminatory access to these platforms.

MuniFrames® provide unserved and underserved areas, including rural areas, with all the benefits of a municipal network. For example, these platforms in broadband-enabled municipal

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[19] D. Jolly, "European Carriers Telefónica and Vodafone Will Share Networks in 4 Countries," *N.Y. Times*, World Business Section, (Mar. 23, 2009). Available at: http:// www.nytimes.com/2009/03/24/business/worldbusiness/24vodafone.html ; *see also* T.K. Thomas, "Telenor Eyeing More Infra Sharing Deals," *The Hindu Business Line,* (Mar. 27, 2009) Available at: http://www.thehindubusinessline.com/2009/03/27/stories/2009032751750300.htm

[20] "ITU advocates infrastructure sharing to counter investment drought: 'Trends in Telecommunication Reform' Report explores lower costs for network rollout," ITU Press Release (Nov. 27, 2008). Available at: http://www. itu. int/newsroom/press_releases/2008/35.html

areas can be used to provide backhaul for mobile wireless carriers, wireline carriers, schools, libraries, first responder networks, and local, state, and municipal government users.

By connecting communities and enabling broadband service to a diverse cross-section of users, these platforms also further Congress's directive that the Commission use its national broadband plan to advance a series of important public policy goals.[21] By promoting the deployment of these platforms, the Commission would also be advancing consumer welfare, community development, job creation, economic growth, private sector investment, and entrepreneurial activity through lower costs, increased connectivity, and expanded broadband availability. By providing solutions that meet government and first responder service requirements, the Commission would also be advancing important public safety and homeland security goals.

Supporting equal, non-discriminatory access to MuniFrames® truly facilitates nationwide broadband deployment while greatly reducing network build-out costs. Moreover, the widespread deployment of these backhaul platforms would help "ensure that all people of the United States have access to broadband capability."[22]

B. Competitive Solutions

Recommendation 3. The Commission Should License a Limited Number of the Numerous Vacant Channels in the TV White Spaces for Fixed, Point-to-Point Use.

In view of the importance of middle mile and second mile backhaul to the successful development of a ubiquitous broadband infrastructure, a key component of the Commission's national broadband plan should focus on expanding the amount of licensed spectrum designated for that purpose. As the *NOI* suggests, this goal can be furthered by granting the Request for Expedited Considerations of the Petition for Reconsideration filed by FiberTower, the Rural Telecommunications Group ("RTG"), COMPTEL, and Sprint Nextel in the TV White Spaces

21 *NOI* ¶¶ 63-105; ARRA § 6001(k)(2)(D).
22 *NOI* ¶¶ 13-23; ARRA § 6001(k)(2).

proceeding.[23] Also, FiberTower joined RTG and Sprint Nextel in a separate, TV White Spaces specific filing made today in this proceeding.

FiberTower notes the following concerning the value to middle mile and second mile:

1. Mobile and wireline networks need backhaul to work.
2. 15-to-48 *vacant* TV White Space channels have always existed in rural areas. Sources: FCC and Spectrum Bridge databases.
3. The proposal for point-to-point licensed access to the TV White Spaces is limited to up to 6 *vacant* channels, and seeks to locate them in the 2nd or 3rd adjacent *vacant* channels. In other words, it leaves many many vacant channels for other uses.
4. A main reason that broadband fails to reach unserved and underserved areas revolves around fact that those areas lack affordable backhaul solutions.
5. Fiber works nicely where affordable and easily built, yet the economics or terrain simply require fixed wireless to realistically reach many locations.
6. Higher band (6 GHz, 11 GHz, 18 GHz, 23 GHz, 24 GHz, 28 GHz, 39 GHz, etc) applications meet many needs, yet it remains true that distance capabilities in the lower bands (TV White Spaces, etc) combined with lower antenna weight, offer the ability to economically reach into areas without requiring additional hops or tower builds.

Recommendation 4. Congress Should Expand, and the Commission Should Enforce, Existing Federal Preemptions Over Burdensome Zoning and Permitting Restrictions for Fixed Wireless Antenna Placements.

In the *NOI*, the Commission sought comment on the extent to which tower siting, pole attachments, and rights of way issues, "stand as impediments to further broadband deployments where such deployments would be made by market participants . . . ."[24] In truth, access to utility

[23] In the Matter of Request for Expedited Consideration of their Petition for Reconsideration1 of the Commission's *Second Report and Order and Memorandum Opinion and Order* ("*Second R&O*") of FiberTower, RTG, COMPTEL and Sprint Nextel, , ET Dockets No.04-186 and 02-380 (July 14, 2009).

[24] *NOI* ¶ 50.

infrastructure on reasonable rates, terms, and conditions, and speedy and principled local government approval for use of public rights-of-way, are critical to expanding broadband deployment.

A generation ago, obtaining prompt access to public rights-of-way, facility construction permitting and poles for aerial plant was a major obstacle to cable's early deployment. Congress then addressed these utility and government impediments and helped unleash cable's potential when it passed the Pole Attachment Act in 1978 and the Cable Communications Policy Act in 1984.[25] These major amendments to the Communications Act facilitated the growth of entire industries.

This is not to say that there have been no updates. The 1978 Pole Act was amended in 1996 to sweep non-ILEC telecommunications carriers (which the Supreme Court subsequently found could include carriers that seek to place wireless devices on utility poles) under its protections.[26] The 1996 Act also sought to prevent local and state governments from imposing unreasonable entry barriers on telecommunications carriers.[27] The Act attempted to place limits on local governments' ability to restrict new tower siting and construction.[28] On balance, these amendments helped promote the deployment of additional alternative networks in the post-1996 world. For example, the subsequent FCC OTARD implementation rules place the burden on the entity seeking to restrict or slow a wireless device deployment (through zoning, permitting or other means).

But as markets have developed in the 13 years *since* the 1996 Act (and the 25 and 30 years since the Cable and Pole Attachment Acts respectively), and as so much policy focus now appropriately falls on under- and unserved areas and wireless broadband solutions, the growing "real world" holes in the statutory and regulatory construction are too big to ignore any longer.

Although time-to-market and cost considerations are critical, the tribunals empowered to ensure just and reasonable access to poles, conduits, and rights-of-way, and that local and state governments are not unreasonably impeding deployment, often lack both the capacity and the authority to efficiently and fully facilitate access. A "shot clock" setting a deadline by which a government entity or an infrastructure owner must accord physical access — and suffer stern

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25 47 U.S.C. §§ 224, 521 *et seq.*

26 *See National Cable & Telecomm. Ass'n v. Gulf Power Co.*, 534 U.S. 327 (2002) ("*Gulf Power*").

27 *See, e.g.*, 47 U.S.C. § 253.

28 *Id.* at § 332(c)(7).

consequences if the deadline is not met — is particularly important. Swift dispute resolution and enforcement procedures — *e.g.*, "rocket dockets" — are also essential.

The statutory and regulatory gaps affecting both pole owners and state and local governments are fundamental and include major jurisdictional holes. Federal pole attachment regulations do not provide carriers access to government-owned or cooperative-owned poles, ducts, conduits and rights-of-way on uniform basis.[29] Only cable operators and certain telecommunications carriers fully benefit from federal pole attachment regulation. As for proscriptions against state and local governments under Section 253 of the Communications Act,[30] only entry barrier restrictions relating to telecommunications and telecommunications carriers fall under the provision's purview. That narrow, dated definition needs to change.

a. Pole Attachments and Other Utility Structures

At the outset, the Commission should reaffirm that it is committed to reasonable rates, terms, and conditions for ***wireless*** facilities, and not just wireline facilities. That is the starting point for greater broadband availability. But it is only the starting point.

Markets where FiberTower has spectrum include areas where poles and other utility support structures are owned by cooperatives or government-owned utilities. Although FiberTower and others are encouraging the Commission to take some helpful measures in the pending pole attachment docket,[31] at the moment the Commission's authority goes only so far. Thus, Congress needs to address some fundamental gaps in the existing regime.

In its national broadband plan, the Commission should use its *Gulf Power II* authority to memorialize the broader definition of wireless facilities that are entitled to pole attachment protections.[32] The Commission could dialogue with Congress to refresh Section 224 in accordance with this aspect of the Supreme Court ruling. For example, the protections should not be limited only to the attachments of cable television systems or non-ILEC "telecommunications carriers to provide telecommunications services," but also to non-ILEC providers of "lawful electronic communications services."[33] Section 224 also should be clarified to apply expressly to

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29 *See id*. § 224(a)(1).
30 *Id.* at § 253.
31 *See Implementation of Section 224 of the Act*, Notice of Proposed Rulemaking, 22 FCC Rcd 20195 (2008).
32 *See Gulf Power*, 534 U.S. 327.
33 *See, e.g.*, 47 U.S.C. §§ 224(d)(3), (e)(1), (f).

wireless attachments, along with electric transmission structures (to the extent that they are not already covered). Expanding the scope of protected facilities would ease the way for additional broadband infrastructure and service providers to deploy new facilities across the country. If covered by Section 224's protections, such providers could expand their networks more rapidly and at more reasonable costs.

In addition, the current exemption for government-owned utilities and cooperatives should either be expanded to include all facilities-based carriers or eliminated,[34] especially because it is likely that stimulus grants and loans will put more of these pole-owning exempt entities into direct competition with private companies. The Recovery Act identifies the National Telecommunications and Information Administration and the Rural Utilities Service ("RUS") as the federal distributing agencies for the broadband stimulus funds.[35] The law is clear that applicants for the RUS funds who have received prior RUS grants or loans will have a preference over those that have not.[36] History shows that the temptation of a competing pole owner (*i.e.*, one that provides communications services) to favor itself or its affiliate and to deny reasonable access to others is too great to resist absent oversight or regulation. Cooperatives present a particular challenge because they tend to be located in rural or exurban areas—the very places where middle mile and last mile gaps are most obvious. Municipalities and municipally owned electric systems present a similar, but somewhat different challenge. Municipal electric companies, like cooperatives, are not subject to pole attachment regulation, but they should be. While many smaller cities and towns have their own electric distribution systems, the poles of which are exempt from pole regulation, municipal electric ownership by no means is limited to small towns. Seattle, Los Angeles, San Antonio, and Jacksonville all own the local electric company and the overwhelming majority of the poles.

Some municipal utilities have attempted to reserve for themselves (and to use their poles toward that end) pockets of the broadband market that private-sector competitors seek to serve. It seems that we are entering a period where this impulse will only grow stronger.

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[34] *See id*. § 224(a)(1).

[35] *See* ARRA, Title I (Rural Utilities Service), Title II (National Telecommunications and Information Administration).

[36] *See* ARRA, Title I (Rural Utilities Service, Distance Learning, Telemedicine, and Broadband Program) (stating that "priority shall be given for project applications from borrowers or former borrowers under title II of the Rural Electrification Act of 1936 and for project applications that include such borrowers or former borrowers").

Cooperatives, municipalities, and investor-owned utilities (which today are subject to regulation under Section 224) in many locations are racing to deploy so-called "Smart-Grid" facilities and applications. A staple of certain Smart Grid systems is fiber, fixed wireless, and other broadband technologies that can be put to other uses, such as addressing middle mile and last mile deficiencies. That is why regulatory coverage for cooperatives and government-owned (municipal) utilities, shot clocks, rocket dockets, and enforcement should be part of any national broadband plan.

Specifically, Congress should amend Section 224 to provide for an access shot clock that starts from the date that written application is made for utility structure access. If actual physical access is not provided within that period, then swift, effective enforcement is needed. Section 224 should also be expanded to require that the Commission (and state commissions certified to regulate pole attachment matters) impose forfeitures, penalties, and other sanctions on utility infrastructure owners that fail to meet shot clock deadlines or otherwise violate reasonable rates, terms, and conditions.

Enforcement of these rules will be key. Time-sensitive access cases should be placed on an abbreviated rocket docket like that currently in place under the Commission's Section 208 enforcement regime,[37] but which is not available for FCC pole attachment complaints.[38] Similarly, Section 224 should be amended to require the Commission and certifying state commissions to resolve support structure right-of-way access disputes with state and local governments within a specific statutory period after the filing of a complaint (FiberTower recommends a 180-day period).

One area that has been subject to considerable controversy — controversy that is bound to increase as pole owners seek to install communications facilities of their own — relates to pole capacity and pole changeouts. Section 224 allows pole owners to deny access if they determine that there is insufficient capacity on the pole.[39] Telephone companies regulated under Section 224, on the other hand, enjoy no such power—and for good reasons: (1) the obviously

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[37] *See* 47 C.F.R. § 1.730 (The Enforcement Bureau's Accelerated Docket); *see also* 47 C.F.R. §§ 1.720-1.736.

[38] Notwithstanding the absence of such a formal procedure today in pole attachment enforcement, FCC staff in the Markets Disputes Resolution Division of the Enforcement Bureau have proven to be skilled and knowledgeable mediators. But mediation is voluntary; no party can be compelled to participate. Moreover, not all mediations result in resolution. Fast-track pole attachment enforcement, however, not only would address the need to resolve quickly the difficult outlier cases, but also might encourage otherwise reluctant parties to mediate.

[39] 47 U.S.C. § 224(f)(2).

competitive posture that they have with the entities subject to statutory protection; and (2) the fact that, in all but the most extreme cases, any concerns about "insufficient capacity" can be readily addressed by either rearranging existing facilities or changing the existing pole out to a taller pole. Because the standard — and the tradition — is for the party requesting access to pay for the pole rearrangement or replacement, putative "insufficient capacity" on poles is largely a fiction, notwithstanding judicial efforts to bring clarity to the issue.[40] Removing the reference to "insufficient capacity" in Section 224(f)(2) to bring utility pole regulations into a posture similar to telephone poles would help to resolve the problem.

b. Government-Controlled Rights-of-Way and Facility Siting

The Commission should encourage and expedite broadband deployment further by making specific right-of-way and siting recommendations to Congress as part of its national broadband plan. Specifically, Section 253 of the Act should be expanded to bar entry barriers to all qualified providers of "lawful electronic communications services," including those provided by "wireless" facilities.[41] Section 253 should also be amended to limit explicitly state and local fees, taxes and other assessments on wireless communications providers for use of the public rights-of-way.[42]

In addition, Congress should expand Section 253 to require the FCC to resolve right-of-way access disputes between those seeking access and state and local governments within a specific statutory period (180 days). Congress should also expand Section 253 to include specific, swift shot clock access and rocket docket dispute resolution procedures like those outlined above with respect to pole attachment access. The installation of FiberTower's facilities on existing structures, for example, should not invoke local zoning processes because these facilities have no environmental, esthetic, or other impact on the structures or surrounding areas, and, to the extent that zoning considerations were initially necessary for the structures at issue (*e.g.*, a cell tower), approvals have already been secured.

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[40] *See, e.g., Alabama Power Co. v. FCC*, 311 F.3d 1357 (11th Cir. 2002), *cert. denied*, 540 U.S. 937 (2003); *Florida Cable Telecommunications Association, Inc.; Comcast Cablevision of Panama City, Inc.; Mediacom Southeast, L.L.C.; and Cox Communications Gulf, L.L.C. v. Gulf Power Company*, Initial Decision of Chief Administrative Law Judge Richard L. Sippel, 22 FCC Rcd 1997 (2007).

[41] *See* 47 U.S.C. § 253(a).

[42] *See id.* §§ 253(b)-(c).

c. Fixed Wireless Antenna Deployments As Swift As Satellite Dish Deployments

Section 1.4000 of Title 47 of the Code of Federal Regulations, preempts restrictions that impair the use of small antennas (one meter or less in diameter) that receive and/or transmit various types of broadcast, satellite, and fixed wireless signals. This rule expressly prohibits private restrictions, such as lease provisions and homeowners' association rules. Furthermore, this law takes precedence over state and local regulations.

Restrictions that impair the use or installation of small antennas that receive or transmit data, telecommunications, or video are not permitted. Fixed wireless operators and their customers have the right to install antennas one meter or less in diameter that receive or transmit fixed wireless signals. Antennas for all types of service, whether voice, data, or video, are covered. These antennas may be installed in any area under the exclusive control of the user (either the operator or its customer), whether owned or leased and whether the premises are residential or commercial.

Governments and municipalities should not impair installation and use of qualifying antennas by requiring zoning variances, building permits, or construction permits prior to installation. Landlords or homeowners' associations cannot use lease provisions, covenants, or other forms of private agreement to impair the installation and use of these antennas. While it may be permissible to require reasonable prior notice before installing an antenna, such a provision cannot be used, directly or indirectly, to suggest prior approval is needed.

A private or governmental party that desires to restrict the installation of these antennas may do so only if it can demonstrate to the FCC or a court that is has good reason to have such a restriction. The restriction is unenforceable until the FCC or a court has made a finding that the proposed private restriction or local regulation should be allowed. A party may not undertake any civil, criminal, administrative, or other legal action to enforce the restriction unless the party has first obtained a ruling from the FCC or a court of competent jurisdiction. No attorneys' fees may be collected and no fines may be assessed or may accrue while the proceeding is pending.

Restrictions cannot impair the use or installation of antennas by unreasonably delaying or increasing the cost of installation or use, or precluding reception of an acceptable signal.
The FCC may determine that a restriction is reasonable if it has a clearly defined health or safety objective that is stated in the text of the regulation itself or otherwise readily available to the user, and is applied non-discriminatorily to comparable devices. Restrictions may be reasonable if

necessary to preserve a historic or prehistoric site listed in the National Register of Historic Places. In both safety and preservation cases the restrictions must be no more burdensome than necessary and must be applied in a non-discriminatory manner.

General safety language, or vague or unreasonable safety concerns, will not justify a restriction. Aesthetic regulation of antennas is generally not permitted. For example, a local zoning authority or homeowners' association may not require height limits, movement of visible antennas, limits on multiple antennas, or prior approval of an architectural committee. The small fixed wireless antennas contemplated for installation generally are 10", 12" or 24" in both width and height, or smaller. This is dramatically smaller than the satellite antenna systems already installed nationwide without restriction.

The burden to prove a restriction reasonable falls on the party seeking to enforce the restriction, not on the installer or user. If the ruling is adverse to the user, the user has a 21-day grace period to comply. Parties seeking to enforce restrictions which would normally be prohibited may petition for a waiver, which may be granted on showing of local concerns of a highly specialized or unusual nature, such as preservation of a historic district.

Recommendation 5. Support Access to the Secondary Spectrum Markets.

In its consultative role in the broadband provisions of ARRA the Commission should ensure that the National Telecommunications and Information Administration ("NTIA") and the Department of Agriculture's Rural Utilities Service ("RUS") encourage middle mile and second mile carriers to access the secondary spectrum markets where such carriers find other wireline or spectrum solutions economically or technically infeasible or simply unavailable. The Notice of Funds Availability ("NOFA") established for first round Broadband Telecommunications Opportunity Program ("BTOP") fails to enable potential last mile or middle mile broadband suppliers or customers to access the secondary spectrum markets.

In the marketplace there are at least four known methods by which an applicant could acquire spectrum usage rights.

- Federal Communications Commission ("FCC") spectrum auction;
- FCC fee-based applications;
- Purchase spectrum licenses in the private marketplace;

- Lease spectrum in the private marketplace.

It probably makes little sense for a BTOP applicant to participate in an FCC spectrum auction and use BTOP funds to acquire said federal spectrum. Yet, a prohibition on private marketplace spectrum acquisitions or private leasing seems shortsighted in that it makes it much more difficult to efficiently use the taxpayer's dollars to reach unserved and underserved areas, and it also undermines the FCC's own secondary spectrum markets policy.[43]

The secondary markets policy allows license holders to: (i) lease or (ii) sell spectrum; that leased or sold spectrum may comprise whole licenses or partitioned or disaggregated licenses. This policy brings underutilized parts of spectrum licenses to the marketplace. It is federal policy to promote spectrum leasing. Such leasing allows carriers and end users, whether large or small, easier and less expensive access to provision broadband services. This especially true in unserved and underserved areas.

It is also an efficient use of taxpayer dollars. The secondary markets policy brings lower cost services (compared to buying fiber or having to buy an expensive and oversized spectrum license when you only need coverage in a small spot), and motivates license holders to more efficiently use their license. No rationale exists in the NOFA justifying the prohibition on utilizing the secondary spectrum markets. Currently, NTIA is tasked with taking spectrum from federal agencies in order to address spectrum shortages in the commercial marketplace, in large part to make broadband services available nationwide. Government agencies should facilitate a wise secondary spectrum markets policy, versus hindering it, by allowing BTOP applicants to utilize the private spectrum marketplace.

IV. CONCLUSION

A complete national broadband plan requires clear access to "middle mile" and "second mile" backhaul transport. The deployment of such networks is critical to expanding access to

[43] *See* In the Matter of Promoting Efficient Use of Spectrum Through Elimination of Barriers to the Development of Secondary Markets, *Second Order on Reconsideration*, WT Docket No. 00-230 (Oct. 17, 2008); *see also* In the Matter of Promoting Efficient Use of Spectrum Through Elimination of Barriers to the Development of Secondary Markets, *Second Report and Order, Order on Reconsideration*, and *Second Further Notice of Proposed Rulemaking*, WT Docket No. 00-230 (Rel. Sept. 2, 2004).

broadband in the United States and is essential to realizing the benefits of broadband networks, whether they support carrier, enterprise, or government operations.

Certain steps can significantly help address the technical and economic disparities underlying the broadband middle mile and second mile backhaul transport gap:

- *Ensure that multiple-use backhaul platforms, called MuniFrames®, are built, mapped and accessible to all users***.** Mapping unserved and underserved areas will allow parties to ascertain whether and where such multi-use platforms exist. Moreover, it is important to ensure that all parties have the ability to access these platforms in a reasonably nondiscriminatory manner.
- *Backhaul specific spectrum allocations are needed in bands below 2 GHz. A good start is to license a limited number of the numerous vacant channels in the TV White Spaces for fixed, point-to-point use.* The lack of backhaul and transport services is particularly problematic in rural areas, where numerous vacant channels exist and high costs and great distances slow or prevent connections to carrier switch locations or the Internet. The long-range propagation characteristics of the TV White Spaces allow backhaul to be provided over the spectrum at a fraction of the infrastructure cost associated with shorter range spectrum. The TV White Space spectrum offers, in some areas, an economic and practical solution to problems associated with bringing middle mile and second mile access to unserved and underserved areas.
- *Re-enforce existing federal protections against burdensome zoning and permitting restrictions for fixed wireless antenna placements.* Restrictions that unreasonably impair the installation of small antennas for fixed wireless service, including prohibitive access and pricing practices, should be prohibited. Zoning and permitting requirements, moreover, often add substantial delays and costs to broadband deployment.
- *Support access to the secondary spectrum markets.* In its consultative role in the broadband provisions of ARRA the Commission should ensure that the National Telecommunications and Information Administration ("NTIA") and the Department of Agriculture's Rural Utilities Service ("RUS") encourage middle mile and second mile carriers to access the secondary spectrum markets where such carriers find other wireline or spectrum solutions economically or technically infeasible or simply unavailable. The Notice of Funds Availability ("NOFA") established for first round Broadband Telecommunications

Opportunity Program ("BTOP") fails to enable potential last mile or middle mile broadband suppliers or customers to access the secondary spectrum markets. That is a mistake and fails to make the highest and best use of taxpayer funds utilized to deploy broadband. The second round NOFA should include reasonable funding opportunities for applicants seeking to offer cost effective solutions that utilize the secondary spectrum markets.

To overcome middle mile and last mile backhaul and transport facility shortages, and to encourage the deployment of advanced broadband services, FiberTower asks the Commission to take the above considerations into account in the development of its national broadband plan.

Respectfully submitted,

/s/ Joseph M. Sandri, Jr.
Joseph M. Sandri, Jr.
Senior Vice President,
Government & Regulatory Affairs
FIBERTOWER CORPORATION
1667 K Street, NW
Suite 250
Washington, D.C. 20036
(202) 223-1028
jsandri@fibertower.com

Angela C. Parsons
Government & Regulatory Affairs
FIBERTOWER CORPORATION
1667 K Street, NW
Suite 250
Washington, D.C. 20036
(202) 223-2003
aparsons@fibertower.com